

CLAIMS

What is claimed is:

1. A method of generating a random number for a cryptographic security subsystem
5 of a processor-based device, the method comprising the acts of:

- (a) detecting occurrence of a first type of triggering event;
- (b) writing one or more bits of data to a seed pool upon termination of the first type of
10 triggering event; and
- (c) repeating acts (a) and (b) until the seed pool is full.

2. The method as recited in claim 1, wherein act (b) comprises the act of capturing
15 one or more bits of data from a free-running timer upon termination of the first type of triggering
event.

3. The method as recited in claim 1, wherein the first type of triggering event has a
20 variable duration.

4. The method as recited in claim 1, wherein the processor-based device is coupled to a communication link, and wherein act (a) comprises the act of receiving a communication from the communication link.

5. The method as recited in claim 4, wherein the communication link comprises a network.

6. The method as recited in claim 4, wherein the communication link comprises the Internet.

7. The method as recited in claim 1, comprising the acts of:

- (d) detecting occurrence of a second type of triggering event;
- (e) writing one or more bits of data to the seed pool upon termination of the second type of triggering event; and
- (f) repeating act (e) each time the second type of triggering event is detected.

8. The method as recited in claim 7, wherein act (e) comprises masking the one or more bits of data into the seed pool upon termination of the second type of triggering event.

5 9. The method as recited in claim 8, wherein act (e) comprises capturing the one or more bits of data from a free-running timer upon termination of the second type of triggering event.

10 10. The method as recited in claim 7, wherein the second type of triggering event is different than the first type of triggering event.

15 11. The method as recited in claim 7, wherein the second type of triggering event is a cycle of power applied to the processor-based device.

20 12. The method as recited in claim 1, wherein the seed pool comprises a state bit indicative of a state of the seed pool, and wherein the method comprises the act of examining the state bit to determine whether the seed pool is full.

13. A method of initializing a seed pool for generating a random number for a cryptographic security subsystem of a processor-based device, the method comprising the acts of:

- (a) writing a plurality of bits of data to a seed pool, the plurality of bits of data having a signature value;
- (b) detecting occurrence of a first type of triggering event;
- (c) writing one or more bits of data to the seed pool upon termination of the first type of triggering event, the one or more bits of data altering the signature value of the seed pool; and
- (d) enabling the cryptographic security subsystem when more than a predetermined portion of the signature value of the seed pool has been altered.

14. The method as recited in claim 13, wherein the first type of triggering event comprises a cycle of power applied to the processor-based device.

15. The method as recited in claim 13, wherein the first type of triggering event is a reboot of the processor-based device.

16. The method as recited in claim 13, wherein act (c) comprises the act of masking
the one or more bits of data into the seed pool.

5 17. The method as recited in claim 13, wherein act (c) comprises the act of capturing
the one or more bits of data from a free-running timer.

10 18. The method as recited in claim 13, comprising the acts of:

detecting a second type of triggering event;

determining if the seed pool is full; and

15 writing one or more bits of data to the seed pool upon termination of the second type of
triggering event if the seed pool is not full.

20 19. A processor-based device comprising:

a host processing system, the host processing system comprising a processor;

a communications management system in communication with the host processing system;

a memory system in communication with the host processing system and the communications management system,

wherein the communications management system comprises:

an interface controller;

a non-volatile memory device to store a seed pool; and

security logic in communication with the interface controller and the non-volatile memory device, the security logic configured to generate a cryptographic key to establish a secure communication session between the processor-based device and an external device in communication with the processor-based device via the interface controller, wherein the security logic generates the cryptographic key from the seed pool stored in the non-volatile memory device, and wherein the security logic is configured to:

detect occurrence of a first type of triggering event;

determine whether the seed pool is fully populated; and

write one or more bits of data to the seed pool upon termination of the first type of triggering event if the seed pool is not fully populated.

5 20. The processor-based device as recited in claim 19, wherein the security logic is configured to:

detect occurrence of a second type of triggering event;

10 write one or more bits of data to the seed pool upon termination of the second type of triggering event.

15 21. The processor-based device as recited in claim 19, wherein the communications management system comprises a free-running timer, and wherein the security logic is configured to capture the one or more bits of data from the free-running timer upon termination of the first type of triggering event.

20 22. The processor-based device as recited in claim 19, wherein the first type of triggering event has a variable duration.

23. The processor-based device as recited in claim 19, wherein the first type of triggering event comprises receipt, by the interface controller, of a communication from an external device.

24. The processor-based device as recited in claim 23, wherein the interface controller comprises a network interface controller.

25. The processor-based device as recited in claim 23, wherein the interface controller comprises an RS232 interface controller.

26. The processor-based device as recited in claim 19, wherein the processor-based device comprises a main power supply to supply power to the processor-based device, and wherein the second type of triggering event comprises a cycle of the power supplied by the main power supply.

27. A processor-based device comprising:

a host processing system, the host processing system comprising a processor;

a communications management system in communication with the host processing system; and

a memory system in communication with the host processing system and the communications management system,

wherein the communications management system comprises:

an interface controller;

a non-volatile memory device to store a seed pool comprising a plurality of data bits; and

security logic in communication with the interface controller and the non-volatile memory device, the security logic configured to establish a secure communication session between the processor-based device and an external device in communication with the processor-based device via the interface controller, and wherein the security logic is configured to:

determine whether the plurality of data bits in the seed pool has at least a portion of a signature value; and

disable establishment of the secure communication session if the plurality
of data bits has at least a portion of the signature value.

5 28. The processor-based device as recited in claim 27, wherein the security logic is
configured to detect a first type of triggering event, and to write one or more data bits to the seed
pool upon termination of the first type of triggering event.

10 29. The processor-based device as recited in claim 28, comprising a main power
supply to supply power to the processor-based device, and wherein the first type of triggering
event comprises a cycle of the power supplied by the main power supply.

15 30. The processor-based device as recited in claim 27, wherein the security logic is
configured to:

detect a second type of triggering event;

20 determine whether the seed pool is fully populated; and

write one or more data bits to the seed pool upon termination of the second type of
triggering event if the seed pool is not fully populated.

31. The processor-based device as recited in claim 30, wherein the second type of triggering event comprises receipt of a communication from the external device via the interface controller.

32. The processor-based device as recited in claim 31, wherein the interface controller comprises a network interface controller.